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PREVENTION OF SIGNIFICANT AIR QUALITY DETERIORATION

Proposed Rulemaking

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 52]

APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

Prevention of Significant Air Quality Deterioration

Notice is hereby given that the Administrator of the Environmental Protection Agency (EPA) intends to issue regulations setting up a mechanism for preventing significant deterioration of air quality in areas where air pollution levels currently are below the national ambient air quality standards (40 CFR Part 50). These regulations would be issued under the Clean Air Act and would prescribe steps to be taken by the States. This notice sets forth four proposed plans reflecting various approaches to defining and preventing significant deterioration. It is the Administrator's intention not only to receive written comments on these proposals but also to hold public hearings in various places in order to provide the greatest possible opportunity for public involvement in this rule-making. Certain questions on which public comment is specifically invited are identified in the concluding section of this preface.

Publication of this notice is related to a suit filed May 24, 1972, in which the Sierra Club and other groups sought a declaratory judgment and injunction requiring the Administrator to disapprove all State implementation plans which did not contain procedures for preventing significant deterioration in any portion of any State where air quality is superior to national standards. On May 30, 1972, the District Court for the District of Columbia granted the plaintiffs' motion for a preliminary injunction and issued a preliminary injunction requiring the Administrator, within four months thereafter, to review all State plans and "disapprove any portion of a State plan which fails to effectively prevent significant deterioration of existing air quality." The preliminary injunction also required the Administrator to promulgate regulations "as to any State plan which he finds, on the basis of his review, either permits the significant deterioration of existing air quality in any portion of any State or fails to take the measures necessary to prevent such significant deterioration." On November 1, 1972, the decision of the District Court was affirmed by the U.S. Court of Appeals for the District of Columbia Circuit on the basis of an opinion filed by the District Court on June 2, 1972. Subsequently, the U.S. Supreme Court stayed the effect of the District Court's decision pending its consideration and disposition of the case on application for a writ of certiorari. On June 11, 1973, the Supreme Court, by an equally divided court, affirmed the judgment of the Court of Appeals; no opinion was issued.

Each State plan has been reviewed in accordance with the preliminary injunction issued by the District Court. Although many State plans included regulations which have the potential for resulting in the attainment of air quality better than that required by the national standards, and although some State plans contained general policy statements indicating an intent to prevent or minimize deterioration of air quality, none was found to contain explicit and enforceable regulations for implementing such a policy. Accordingly, all State plans were disapproved by the Administrator on November 9, 1972 (37 FR 23836), insofar as they failed to provide for the prevention of significant deterioration. This disapproval did not affect the status of any previously or subsequently approved regulations designed to provide for the attainment and maintenance of national ambient air quality standards. Furthermore, in the absence of Federal regulations prescribing requirements for prevention of significant deterioration the Administrator's disapproval was necessarily based on a generalized assessment of the State plans. To the extent that any State plan is determined to meet any of the requirements ultimately established as a result of this rulemaking proceeding, the Administrator's disapproval will be appropriately modified.

In EPA's view, there has been no definitive judicial resolution of the issue whether the Clean Air Act requires prevention of significant deterioration of air quality. When the issue was presented to the Supreme Court, the Court was equally divided. The Court's action had the effect of permitting to stand the judgment of the Court of Appeals for the District of Columbia Circuit, which was entered in the procedural context of the issuance of a preliminary injunction.

In the absence of a definitive judicial decision on the issue, the Administrator adheres to the view that Section 110 of the Clean Air Act requires EPA to approve State implementation plans that will attain and maintain the national ambient air quality standards, and that the Act does not require EPA or the States to prevent significant deterioration of air quality. The proposed alternative regulations set forth herein would establish a mechanism for preventing significant deterioration pursuant to the preliminary injunction issued by the District Court.

Public Policy Issue

The question raised by the Sierra Club suit was a legal issue, i.e., interpretation of the language and legislative history of the Clean Air Act. Thus, the courts were asked to determine that the Act requires the Administrator to ensure that State implementation plans will not permit significant deterioration of air quality. What the courts were not asked to determine is what constitutes significant deterioration and exactly how it will be prevented.

A national policy of preventing significant deterioration, however defined and implemented, will have a substantial impact on the nature, extent, and location of future industrial, commercial, and residential development throughout the United States. It could affect the utilization of the Nation's mineral resources, the availability of employment and housing in many areas, and the costs of producing and transporting electricity and manufactured goods. Without implying any judgment as to the general acceptability of any of the effects of a "no significant deterioration" policy, the Administrator believes that they are potentially so far-reaching that the question of how such a policy should be defined and implemented cannot properly be addressed, much less decided, on narrow legal grounds. Rather, it is a question that must be discussed, debated, and decided as a public policy issue, with full consideration of its economic and social implications. To approach the question in any other manner would be much too simplistic. There is, perhaps, no other environmental issue that imposes upon the Administrator, and the public, a greater obligation to formulate and objectively evaluate a range of possible solutions. The usual rulemaking procedure of putting forth a single proposal clearly is inadequate in this case. Accordingly, this notice sets forth four alternative sets of proposed regulations based upon different philosophies and administrative approaches to defining and preventing significant deterioration.

Current Constraints on Deterioration

It is important to recognize that many State plans, as well as certain rule making actions already completed under provisions of the Clean Air Act, will have the effect of attaining or maintaining air quality significantly better than the national secondary standards in many places, and that these actions will have the effect of generally improving air quality nationwide. The following paragraphs summarize the more significant of these actions, and there is no intent that the alternatives proposed herein should in any way mitigate the impact of these actions.

1. The Administrator has promulgated (36 FR 8186) national primary and secondary ambient air quality standards. In accordance with the Act, the primary standards were set at a level that provides an adequate margin of safety for protection of the public health, and secondary standards were set at a level that protects the public welfare from any known or anticipated adverse effects. All States have submitted implementation plans to attain and maintain these standards. In many areas of the country, air quality was not sufficient to meet these standards and, hence, in these areas, the State plans will ensure that deterioration cannot occur because the regulations require specific improvements in air quality.

2. Emission control actions to be taken by the States, in accordance with their plans to implement the National Ambient Air Quality Standards in heavily polluted areas, will reduce air pollution concentrations in the periphery of such

areas. For example, the annual average sulfur dioxide concentration in Mercer County, New Jersey, is expected to drop from about 25 micrograms per cubic meter to about 10 micrograms per cubic meter (as compared to the national secondary standard of 60 micrograms) as a result of emission reductions in and around Philadelphia.

3. Emissions reductions to be achieved under State plans in major urban and industrial centers will significantly affect total national emissions and thereby lower the background pollutant concentrations in rural areas. Thus a 25 percent reduction in the background concentration of particulate matter (from about 40 micrograms per cubic meter to about 30 micrograms) in rural areas in the Northeast is anticipated.

4. Emission limitations and other regulations, including restrictions on the sulfur content of fossil fuels as prescribed by many State plans, go beyond what is minimally necessary for attainment of the national standards. In many instances, emission control regulations necessary for attainment of national standards in the most polluted area(s) of a State have been applied statewide. For sulfur dioxide, this has occurred in 33 States. Although implementation of these regulations may be deferred in some clean areas in order to make available low sulfur fuels for use in heavily polluted areas, these regulations will eventually result in further improvement in air quality in many areas where the secondary standards were not exceeded.

5. Federal emission standards for new motor vehicles will result in a steady decrease in motor vehicle emissions in all parts of the Nation through the 1970's and well into the 1980's, as new automobiles equipped to meet these emission standards replace older models which were subject to less restrictive emission standards or none at all. For example, 1974 model automobiles will have emission reductions (per mile) of approximately 80% for carbon monoxide, 70% for hydrocarbons, and 35% for oxides of nitrogen, as compared to vehicles sold prior to 1969. This trend is a result of the Federal emission standards already in effect; it will be accelerated by the even more stringent emission standards due to take effect in the 1975 and 1976 model years.

6. Control of sulfur dioxide, nitrogen oxides, and hydrocarbon emissions to meet national ambient air quality standards and/or Federal emission standards for new stationary sources and motor vehicles can be expected to inhibit atmospheric reactions involving these pollutants and thereby reduce ambient air concentrations of particulate matter such as sulfates, nitrates, and organics. Current State implementation plans generally do not consider this secondary reduction of particulate levels.

It can be seen that there are very strong regulatory measures in existence to prevent any deterioration of air quality in regions where the national standards are currently exceeded. Strong regulatory measures also exist to insure that air quality in currently clean areas cannot deteriorate sufficiently to subject the public health or welfare to any currently quantifiable adverse effects. Although the effect of these regulations is to mitigate any deterioration in most sections of the country, the alternatives presented herein are intended to prevent, in accordance with the District Court's preliminary injunction, any significant deterioration of air quality in any portion of any State.

Conceptual Issues

Section 109 of the Clean Air Act requires the Administrator to establish national primary ambient air quality standards "to protect the public health" and national secondary ambient air quality standards, "to protect the public welfare from any known or anticipated adverse effects," including, as specified by section 302(h), "effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being." Such national standards must be based on air quality criteria which, under section 108, must "reflect the latest scientific knowledge useful in indicating the kind and extent of all identifiable effects on public health and welfare which may be expected from the presence [of air pollutants] in the ambient air, in varying quantities." Thus, standard-setting under section 109 is necessarily limited to demonstrable or predictable adverse effects which can be quantitatively related to pollutant concentrations in the ambient air.

The basis for preventing significant deterioration therefore lies in a desire to protect aesthetic, scenic, and recreational values, particularly in rural areas, and in concern that some air pollutants may have adverse effects that have not been documented in such a way as to permit their consideration in the formulation of national ambient air quality standards. Pending the development of adequate scientific data on the kind and extent of adverse effects of air pollutant levels below the secondary standards, significant deterioration must necessarily be defined without a direct quantitative relationship to specific adverse effects on public health and welfare. It should be emphasized that defining significant deterioration in this way does not imply a judgment by EPA on the question of whether it is sound public policy to define "deterioration" as any increment above existing air pollution levels and to attempt to define "significant" deterioration in the absence of documentation on the adverse effects thereof. Furthermore, it is possible, indeed probable, that even when there are additional data, it will be evident that there are levels below which some of the pollutants covered by national standards do not have effects that can be considered adverse to public health and welfare.

To the extent that the Act provides any basis for defining significant deterioration, it does so only in section 101(b)(1), which declares that one of the purposes of the Act is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population". Additional guidance is available from the legislative history; specifically, the Report of the Senate Committee on Public Works (Report No. 91–1196, dated September 17, 1970) contained the following statement:

> In areas where current air pollution levels are already equal to, or better than, the air quality goals, the Secretary should not approve any implementation plan which does not provide, to the maximum extent practicable, for the continued maintenance of such ambient air quality.

Though the Report also suggested that it might be possible to prevent all deterioration, it is apparent that the measures necessary for that purpose would bring growth and development virtually to a standstill in many areas and therefore are incompatible with protecting the "productive capacity" of the Nation's population.

Clearly, it is not within the province of EPA, under either the Clean Air Act or any other statute, to impose limitations on the Nation's growth. Neither the Sierra Club nor any of the States or organizations that filed amicus curiae briefs with the Supreme Court in support of the Sierra Club's position argued that the District Court's preliminary injunction means that EPA must limit economic growth, as such, in order to prevent significant deterioration of air quality. To the contrary, it was agreed that growth could and would continue, albeit with the restrictions necessary to prevent significant deterioration.

The Sierra Club, for example, made the following statement:

> The development of rural areas will not be prevented by a prohibition against significant deterioration of air quality. Such a prohibition on its face does not prevent all increases in pollution. If the best available technological developments are utilized and if numerous pollution producing sources are not concentrated in one place, most industry can enter clean areas without causing significant deterioration. (p. 94)

And the State of California made the following statements:

> Prevention of significant deterioration of air quality does not foreclose the construction in clean air basins and partially polluted air basins of well-planned and well-disbursed fossil fuel power plants and other polluting industries which utilize, on a continuing basis, the best available technology. 'No significant deterioration' simply means that certain large and inaedquately controlled pollution sources will not be permitted. (pp. 1–2) Of course, economic and social factors may well require some degradation of air quality in certain areas. But this case does not involve any question of prohibiting growth or prohibiting *any* deterioration of air quality. It is not a 'non-degradation' case. (p. 28)

There is, therefore, a consensus that the definition of significant deterioration is intended to represent some level above zero deterioration. An upper bound can also be established on the definition of significant deterioration by recognizing that existing regulations prevent deterioration to levels in excess of the secondary air quality standards.

Hence, any quantitative definition of significant deterioration must fall between the levels of zero deterioration and deterioration up to the secondary standards. Any quantitative definition within this range must be essentially subjective, because, within this range, data are not available with which to quantify any adverse impact on either public health or welfare.

Nationally, the steady deterioration in air quality over the last several decades has already been reversed by existing regulations, and air quality generally has begun to improve in the last few years. Further, this improvement will continue for the foreseeable future. The following table summarizes the expected reductions in total national emissions by 1980. The percentages shown are based on the national emissions of 1970, and include (i.e. "absorb") the growth in sources anticipated for the 1970–1980 period.

Pollutant:	*Percent Reduction in Emissions*
Particulates	40
Sulfur Dioxide	70
Carbon Monoxide	80
Oxides of Nitrogen	40
Hydrocarbons	60

However, even though the nationwide trend in emissions and air quality is favorable, in many local areas which are now quite clean there is the possibility that deterioration could occur. This is because trends in the nationwide averages are predominately influenced by severe emission controls being applied in the large urban areas to attain and maintain the national ambient air quality standards. These controls could drive major polluters into the semi-urban and rural areas, thereby degrading air quality in those areas to a degree that could approach (but not exceed) the secondary standards. Additionally, the growth patterns throughout the country are continually changing, and the normal economic expansion can be expected to lead to increased emissions in some local areas which previously were undeveloped. In some of these areas, the public may feel that the improved economic conditions do not justify the resulting environmental deterioration, even though that deterioration is insufficient to cause a quantifiable adverse impact on either the health or welfare of the population.

However, the future nationwide reduction in emissions, and hence in pollutant concentrations, will be significant. Although much of this reduction is being accomplished in highly industrialized urban areas in order to attain and maintain the national standards, a considerable reduction is also being accomplished in semi-urban areas already well below the standards. Depending upon the plan selected with which to prevent significant deterioration, much of this latter reduction could be used to accommodate future growth without significant deterioration. Further improvements in emission control technology would allow additional growth without causing significant deterioration. The proposed plans would serve to stimulate such improvements.

Nevertheless, it is not possible to rely solely on improved emission control technology to offset the increased emissions attendant to population and economic expansion and redistribution. Many areas of the country have virtually no man-made emissions. To establish a policy that new emissions can only be introduced to the extent that current emissions are reduced would forever relegate these areas to an essentially undeveloped status. This feature would, in turn, require that new pollution sources be located only in the semi-urban and urban areas of the country in which improved control technology would have the greatest impact. This would force the majority of the new emissions into these areas in which the majority of the Nation's population resides.

The relative significance of air quality versus economic growth may be a variable dependent upon regional conditions. For example, relatively minor deterioration of the aesthetic quality of the air may be very significant in a recreational area in which great pride (and economic development) is derived from the "clean air." Conversely, in areas with severe unemployment and little recreational value, the same level of deterioration might very well be considered "insignificant" in comparison to the favorable impact of new industrial growth with resultant employment and other economic opportunities. Accordingly, the definition of what constitutes significant deterioration must be accomplished in a manner to minimize the imposition of inequitable regulations on different segments of the Nation.

Many States have expressed the desire that federal regulations be promulgated in a manner which would permit all States to prevent significant deterioration without placing any individual states in unfairly advantageous or disadvantageous positions for attracting new industry. It is therefore desirable to insure that industry is provided with no incentive to "shop" for areas in which efforts to prevent significant deterioration are deliberately relaxed. Because the competition for new industry is extremely keen among many States, this would require that the philosophy for preventing significant deterioration be enforced uniformly throughout the Nation, even though the definition of what constitutes significant deterioration could include regional variations.

The problem of preventing significant deterioration can be somewhat simplistically, stated as that of reducing emissions to the lowest practicable level, and then distributing those residual emissions in a manner in which they do the least harm. The four alternative plans discussed herein would accomplish this at requiring application of best available control technology to all new or significantly modified major sources regardless of any expected level of deterioration. In addition, each plan is based upon a different type of decision criterion which would be used to determine whether a proposed new or significantly modified source would be permitted to commence construction in any specific location. The four decision criteria would be based upon (1) definition of "significant deterioration" as a constant increment in air quality applicable nationwide, (2) definition of "significant deterioration" as the greater of either a percentage increase in emissions or an emission increment, (3) definition of "significant deterioration" on a case-by-case basis by the public in the local area affected, and (4) definition of "significant deterioration" as one of two air quality increments depending upon land use projections by the State. Each of these plans are discussed in subsequent sections. However, all four plans contain several common features which are worthy of consolidated discussion.

Pollutants Subject to Deterioration Control

Each of the alternative proposals set forth below would require, as a minimum, that best available control technology be applied to certain categories of new sources of sulfur dioxide, particulate matter, carbon monoxide, hydrocarbons, and nitrogen oxides. Thus, this requirement would apply directly or, in the case of photochemical oxidents, indirectly to all pollutants covered by national ambient air quality standards.

The second basic requirement is a review to determine that individual new sources within the specified source categories will not cause significant deterioration. This requirement would applied only to particulate matter and sulfur dioxide. The other pollutants covered by national standards are related primarily or substantially to motor vehicle emissions. As a result of the application of EPA's emissions standards for new motor vehicles, total motor vehicle emissions are decreasing and will continue decreasing well into the future. Accordingly, the purpose of preventing significant deterioration related to carbon monoxide, hydrocarbons, nitrogen oxides, and photochemical oxidants is in the Administrator's judgment, adequately served by the proposed additional requirement for applying best available technology to new stationary sources.

Furthermore, the formation of photochemical oxidants from hydrocarbons and nitrogen oxides and the formation of nitrogen dioxide from nitric oxides involve complex photochemical processes which are time-dependent and related to atmospheric conditions and the interaction of emissions from a variety of sources. It is not possible to relate a specific isolated point source of hydrocarbons or nitrogen oxides to a specific

ambient concentration of photochemical oxidents or nitrogen dioxide because the techniques and assumptions that permit correlation of emissions with ambient air quality in multiple-source areas generally are not valid for application to point sources in relatively clean areas.

SOURCES SUBJECT TO REVIEW

All the proposals set forth below would require preconstruction review of certain types of stationary sources. The proposed preconstruction review procedures are similar to those already required by State implementation plans. These procedures require that source owners or operators submit data to the State and apply for approval to construct, and that the State approves or disapproves the request based on specific criteria. In relation to air quality deterioration, the criteria for this "yes or no" decision are inherent in each plan proposed herein, and are described in the section on each plan.

The initial list of sources proposed for this specific review in each plan represents the Administrator's best judgment as to which sources, in and of themselves, have the potential for causing "significant deterioration" as defined by the four alternative plans. The proposed regulations contain sixteen source categories which currently account for approximately 30 percent of the particulate matter and 75 percent of the sulfur dioxide emitted into the atmosphere each year nationwide, and account for essentially all of these pollutants emitted in clean areas. The regulations also require that any other sources emitting more than 4000 tons of sulfur dioxide or particulate matter annually be subjected to this review.

It is important to note that under the three alternative plans which place a ceiling on pollutant concentrations or emissions from an area, this initial list of sources will be subject to revision as an area approaches its ceiling.

The list of source categories has been restricted in the proposed regulations because it is considered unwise and unnecessary to divert available resources from other air pollution control activities in order to review new sources which do not have the potential to violate the proposed decision-making criteria. It may eventually be necessary to establish a mechanism for making advance assessments of the aggregate air quality impact of smaller sources. Such a mechanism is likely to involve projections of future growth and estimates of air quality impact, similar to those required by the recently promulgated amendments (38 FR 15834, dated June 18, 1973) to new source review requirements applicable to State implementation plans.

BEST AVAILABLE CONTROL TECHNOLOGY

Each of the plans proposed herein would require, as a minimum, application of "best available control technology" (BACT) to specified categories of new sources. The proposed regulations spcify that control systems adequate to comply with new source performance standards (NSPS) promulgated under section 111 of the Clean Air Act generally will be considered BACT (with the exception noted below). The proposed regulations also specify that until such time as new source performance standards (NSPS) are promulgated, BACT for a particular source will be determined by considering: reasonably available control technology [as defined in Appendix B to the Administrator's regulations for the preparation, adoption, and submittal of state implementation plans (40 CFR Part 51)]; the processes, fuels, and raw materials to be employed by an affected source; the engineering aspects of the application of various types of control techniques; and the cost of employing the available control techniques, including hardware and alterantive processes, fuels, and raw materials. However, all specified sources are expected to be covered by NSPS within 18 to 24 months and, because NSPS generally represent the lowest practicable level of emissions, the attainment of NSPS will generally be compatible with application of BACT.

The proposed exception to this equivalency of NSPS to BACT exists with respect to sulfur dioxide emissions from fossil fuel-fired steam electric plants. The levels of emissions from these plants have an extremely wide range due to the varying amounts of sulfur in fuels available in different parts of the country. Current NSPS are set at a level which requires use of a control system on plants burning high sulfur coal. However, in some regions, coal with sulfur content low enough to meet the NSPS is readily available and would be used even in the absence of emission limitations. In these situations, use of the low sulfur regional coal with no additional efforts to control sulfur dioxide emissions would not automatically constitute application of BACT. This use of NSPS as a maximum emission limitation, with the possibility of requiring additional control on a case-by-case basis, is being proposed because the NSPS are designed for uniform application nationwide, whereas significant deterioration is essentially a local or regional issue. Therefore, each of the proposed regulations requires that a case-by-case analysis of fossil fuel-fired electric plants be conducted to determine if emissions can and should be further reduced.

Alternatively, control systems adequate to meet NSPS could be considered BACT in all cases where NSPS exist, including the case of fossil fuel-fired electric generating plants. Since NSPS are required to reflect "the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated," they could be considered to represent a sufficient degree of emission control to prevent significant deterioration "to the maximum extent practicable," in all areas. This alternative definition of BACT is not specifically included in the proposed regulations but since it is arguably consistent with the District Court's preliminary injunction, it is described herein and specifically called to the attention of all interested parties so that there will be an adequate opportunity for public comment thereon.

BASELINE FOR MEASURING DETERIORATION

Most of the plans which have been considered for preventing significant deterioration require that an identifiable level of air quality or emissions be established as a baseline from which to measure deterioration. The three principal alternatives which have been considered are the level existing in 1970 (to correspond to passage of the Clean Air Act), the level existing in 1972 (to correspond to the litigation to which these proposals are related), and the level existing in 1973 (to correspond to these proposed regulations.)

The use of 1970 as a nationwide baseline would present several practical problems. Foremost among these is that in the interim between 1970 and the current time, growth patterns have changed sufficiently that, although the nationwide air quality has improved substantially, in some (particularly non-urban) areas the air quality has already deteriorated—in some places to the extent that the deterioration could be considered significant under some alternative plans. The status of sources which have received prior authorization to construct in these areas would become questionable. Yet, it does not appear equitable to withdraw that authorization due to newly promulgated regulations. In many other areas, air quality could have improved so dramatically that use of 1970 as a baseline would render any deterioration regulations virtually meaningless.

In addition, the availability of air quality data from which to measure deterioration represents a severe problem. Generally, air monitoring has been most intensive in heavily polluted areas. There has been only scattered monitoring in relatively clean areas. However, it is in these relatively clean areas that the deterioration issue is most critical, and to effectively apply most deterioration plans it is essential that relatively precise baseline data be available. Even today, the precise air quality or emission levels in many of these areas are unknown; this, problem is compounded if baseline requirements are extended into the past.

However, the use of 1973 as a baseline year is also impractical, because the baseline must be established upon data for an entire year. Since annual data for 1973 could not be made available in sufficient time for initial application of these regulations, the use of 1973 would require that all data be estimated.

For these reasons, those plans discussed herein which require establishment of a baseline air quality or emission level are developed around the measured or estimated data for 1972. This minimizes, but does not eliminate, the problems associated with lack of data. It also tends to minimize many inequities associated with use of prior year baselines. It does, however, retain the problem regarding treatment of new or modified sources which

have already been approved for construction by the appropriate air pollution agency, but whose emissions and impact on air quality would not be included in the 1972 data base. Because it does not appear equitable to withdraw the construction approval from these sources, the 1972 baseline as defined in the proposed regulations consists of the measured or estimated air quality (or emissions) existing in 1972 as modified by the estimated impact of any source approved (prior to date of this proposal) for construction.

The selection of 1972 as the baseline year also introduces potential problems for a number of growth-oriented regions which improved their air quality in the period 1970–1972 to levels substantially superior to the national standards in anticipation of using that full increment to accommodate future economic expansion. The proposed regulations could substantially reduce that flexibility. The use of 1972 also tends to benefit those areas which were comparatively slow to implement emission reductions. These areas may now implement reductions in the future, and use the resulting air quality or emission increment for future economic expansion. Although this feature appears to penalize growth-oriented regions which implemented stringent controls to achieve air quality substantially superior to the national standards, the disadvantages of the alternative baseline concepts appear to be more significant. Hence, in all plans proposed herein requiring a baseline year, the year 1972 is used.

One or, possibly, some combination of the following four alternatives to prevent significant deterioration will be promulgated as Federal regulations to be enforced by the States until such time as each State possesses authority to enforce similar State regulations.

I. Air Quality Increment Plan

This section discusses a plan to prevent significant deterioration by establishing, for nationwide application, a maximum allowable increment in air quality above the baseline air quality. It is based upon the premise that "significant" deterioration can be defined as a finite increment in air quality, and that the resulting quantitative definition is appropriate for all sections of the country regardless of socio-elonomic conditions, and regardless of the current level of air quality (so long as national ambient air quality standards or other limitations are not exceeded). In addition to establishing this allowable increment, which is applicable to sulfur dioxide and particulate matter, the plan also incorporates the requirement common to all plans that all new or modified sources employ best available control technology.

Regulations which would implement this plan are proposed as the first set of alternative regulations in this notice. The regulations list the sixteen source categories for which deterioration review must be conducted, and also require the review of additional sources with potential emissions in excess of 4000 tons per year.

The definition of significant deterioration on which this plan is based consists of specific allowable increments to be added to the baseline air quality level. These increments are specified in the proposed regulations as:

For particulate matter:
10 $\mu g/m^3$ (annual average)
30 $\mu g/m^3$ (24 hour average)
For sulfur dioxide:
15 $\mu g/m^3$ (annual average)
100 $\mu g/m^3$ (24 hour average)
300 $\mu g/m^3$ (3 hour average)

The averaging times have been selected to be compatible with the existing secondary standards for these pollutants, and the times would be revised to be compatible with any revisions to the standards. This use of compatible time periods is necessary to insure maximum availability of baseline data, and also to facilitate incorporation of the deterioration review procedures into the existing new source review procedures.

Although there are no quantitative data to support the choice of any specific increment below the national standards, the increments proposed represent the Administrator's best judgment of increments which would prevent significant deterioration of currently clean areas, and yet not totally prevent the economic development of selected areas if that development were in the public interest.

If this proposed regulation were implemented, it would limit future development to the level of light industrial and residential complexes, or a very small amount of heavy industry such as stringently controlled power plants. For example, a recently constructed large apartment complex (15,375 units) in New York City is estimated to increase the 3-hour SO_2 concentration by 70 $\mu g/m^3$. This type of development would be allowed. A single well controlled large (1000–1500 MW) coal fired power plant can be expected to increase 24-hour SO_2 from 50 to 200 $\mu g/m^3$ depending on terrain conditions, the emission height and the dispersive characteristics of the atmosphere. The lower numbers represent typical values associated with construction in areas of good dispersion and relatively level terrain; a power plant of this type could be constructed to operate within the proposed criteria. The large increases represent plant construction in non-level terrain or areas of limited dispersion capability: If a plant were to locate in these areas a reduction in emissions beyond NSPS would be required. In general, most other types of sources would have a smaller impact on sulfur dioxide concentrations than a coal fired power plant and, if well controlled, could probably be constructed in most areas. However, in most areas if a source such as a power plant were constructed, the influence of emissions from this source would possibly raise the pollutant concentration over a large area (as great at 700 sq. miles) to a level which would be incompatible with any additional significant development.

The examples cited above assume that emission levels would be comparable to New Source Performance Standards. However, if a coal fired power plant used, for example, 80 percent efficient stack gas cleaning in addition to low sufur (approximately 0.7 percent) coal, the 24-hour SO_2 increase could be limited to 10–40 $\mu g/m^3$, thus permitting construction of several sources. This example further emphasizes that prevention of significant deterioration need not necessarily prevent significant economic development so long as major emphasis is placed on improving emission reduction techniques.

The proposed regulations for this plan would require that all applicable new or modified sources submit comprehensive data to the State describing the source, the type and amount of projected emissions, the type of controls planned, the impact that the new or modified source would have on air quality, and an estimate of the existing air quality in the vicinity of the source. This information would be used by the State, subject to the Administrator's approval, to determine if the source would exceed the allowable air quality or emission limitations and to insure that the source plans to apply best available control technology. Prior to making this determination, the State would be required to provide opportunity for public comment on all information available.

In addition, the proposed regulations require that, unless the State determines that there is already an adequate air quality monitoring network in the vicinity, the source install a minimum of two continuous air quality monitoring instruments and one meteorological instrument in the areas of expected maximum concentration. This feature would assist in developing adequate air quality information for monitoring of the source's impact, and for analysis of the potential impact of proposed future sources to insure that the deterioration ceiling is not exceeded.

Unfortunately, the type of air quality data needed to accurately establish the baseline air quality is not currently available in many clean areas of the country. It would therefore become necessary to initially estimate this information by use of diffusion modeling and other appropriate techniques.

Despite the problems generated by lack of data in most very clean areas, this alternative has some generally desirable features. The increments proposed would not totally prevent economic development of all currently clean areas, but they would force large sources to employ increasingly effective control techniques, would provide the incentive for strong control technology research and development, would prevent construction in difficult terrain areas such as valleys or mountainous areas with poor dispersion characteristics, and would also prevent clustering of large sources with the potential for high localized pollutant concentrations.

The impact of this alternative on currently developed regions is more difficult to assess. As time progresses, improved control technology will cause significant

improvements in the air quality of currently developed areas and these areas will therefore be capable of absorbing more new development than the currently clean areas. This plan would therefore cause currently clean areas to remain relatively clean, but only at the expense of forcing new sources back into the more highly developed and populated areas.

A basic problem of this plan is the land use implications implied with no provisions to insure that they are in the best interests of the public or compatible with public desires. Inherent in any plan with a single deterioration definition applied nationally is the arbitrarily equal treatment of all equally clean areas. It may not be wise to restrict the development of waste lands to the same degree that a scenic national park is restricted, particularly if that restriction forces additional air quality deterioration on the heavily populated regions of the nation.

II. Emission Limitation Plan

This section discusses an alternative plan to indirectly prevent significant deterioration of air quality by preventing significant increases in emissions. Although the correlation between emissions and air quality is often difficult to establish, control of emissions may result in the same effects as are intended by preventing significant deterioration of air quality. Although the national ambient air quality standards are intended to adequately protect the public health and welfare from adverse effects, there are suspected effects that may be related more closely to total atmospheric loading than to specific ambient concentrations. These effects include visibility reduction; reduction in solar radiation reaching the ground; acidification of rain, lakes, and streams; conversion of sulfurous and nitrogenous emissions into sulfates and nitrates; and increases in "background" concentrations. None of these effects have been quantified to the extent that a precise relationship between pollutant emissions, pollutant concentrations, and the degree of adverse effects can be stated. There is, however, at least a qualitative basis for the prevention of significant increases in the load of pollutants carried by the atmosphere.

Atmospheric loading is poorly indicated by ground level concentration measurement due to the influence of meteorological dispersion and source location. Emission density (regional emissions/regional area) is an excellent indicator of atmospheric loading. Furthermore, emission data are more readily available and easier to acquire than air quality distribution data. Thus, emission density is a relevant and practical measure of, and means of control for, types of ambient air deterioration not presently limited by ambient air quality standards.

The calculation of emission density requires the choice of an area over which emissions are to be averaged. The regulations proposed for this plan specify an Air Quality Control Region (AQCR) as this area. There are several reasons for this choice. The AQCR is an established geographical subdivision for purposes of air quality analysis. Considerable data are available on this basis. Furthermore, an area of median AQCR size is necessary in order to provide the kind of development flexibility required with currently available technology. If the averaging area is too small, then no large source of source cluster could locate within it without violating the emission ceiling. A larger averaging area allows the location of a few such large sources because the total emission increase can be allocated to a small portion of the land (thus assuring that the remaining area will remain at low emission density).

It is recognized that AQCRs differ in size and that rigid adherence to the AQCR subdivision could lead to inequitable development opportunity; therefore it is anticipated that, if this proposal is promulgated, States would develop procedures to permit subdivision of large AQCRs and aggregation of small ones. This would also permit relatively pollution free portions of Priority I and II AQCRs to be included in the regions covered by this plan during the AQCR size adjustment process. As the proposed regulations are currently written, this plan would apply only to Priority IA and III AQCRs.

Given the size of an AQCR or averaging region, the baseline annual emissions of sulfur dioxide and particulate matter can be determined. A ceiling emission rate is then calculated by adding either 20% to the baseline emissions, or by calculating a ceiling based on emission density, whichever is larger. This establishes the emission limits for the region. Implementation of this plan would then consist of insuring that the total annual emissions from the region remained below the established emission ceiling.

The incremental increase is difficult to select due to a deficiency of relevant data and theory on the relationship between emission density, atmospheric loading, and the effects to be limited. The emission density factors included in the proposed regulations are 10 tons/year/sq. mile for sulfur dioxide and 3 tons/year/sq. mile for particulates. No AQCR with sulfur dioxide emission densities below these has exhibited air quality poorer than secondary national standards. Particulate emission densities display no general correlation of this type. However, most relatively clean areas have manmade particulate emissions below this level. It should be noted, however, that sulfur dioxide emission densities as high as 200 tons/year/sq. mile may be compatible with Priority III status. The poor correlation between emission density and measured air quality is due to the effect of meteorological factors and source location, as mentioned earlier.

Given the size of the region the allowable emission density factor or percentage increase and the baseline emissions, the emission ceiling for each region can be calculated. The resulting ceilings apply to *all* emitters in the region. For practical reasons, only the large sources included in the proposed regulations must be given formal review, but the contributions of new and existing small sources to the total emissions must also be inventoried.

The regulations proposed for this plan would require each new or modified major source to provide information necessary for the determination of the probable emission rate, compliance with BACT, siting analysis under current new source review procedures, and for public information on which to base comments.

This plan would allow each region considerable flexibility on the selection and location of new emitting sources. The amount of new development possible under the emission ceiling depends critically on the degree of emission control applied to both new and existing sources. The ground level air quality at a given point in the region depends on the distribution of sources about that point. It is possible that the development of small residential and commercial sources could be limited because the available emission increment is used by a few large new emitters. It is also possible that ground level air quality could increase to secondary standards in one or more places due to large new sources or source clusters (although this would insure that air quality in the rest of the region would have no deterioration).

The determination of how emission density is to be distributed in each region would be the State's prerogative, and the Administrator would accept any distribution provided that the emission ceiling and national ambient air quality standards are observed. It is strongly recommended, however, that the allowable regional emissions be distributed in some rational and equitable manner so that the best available ground level air quality is maintained, development is balanced between industry, commerce, and residences, and that the review and approval of the sources specified in this regulation precludes the possibility that a few large sources usurp all of the available air resources of the region.

As an example of how this plan operates, assume that an AQCR of 10,000 square mile area has baseline emissions of 40,000 tons/year of sulfur dioxide. The applicable emission ceiling in this case would be 100,000 tons/year. Assume also that existing sources are expected to reduce emissions from 40,000 to 20,000 tons/year by 1980, and that small source growth is expected to equal 10,000 tons/year. The net available emissions through 1980 would amount to 70,000 tons/year. A coal fired power plant of 1,000 megawatt capacity which meets NSPS will emit about 50,000 tons of sulfur dioxide per year. Such a plant could be located in this AQCR, but it would use a large proportion of the available emission allowance. The State would have to balance its need for electricity against other anticipated emission increases to determine if such a power plant was desirable,

if this type of plant was necessary, or if the emissions from the plant should be reduced below NSPS by applying lower sulfur coal and/or more efficient stack gas cleaning equipment.

III. Local Definition Plan

One of the major problems in defining significant deterioration is that the level at which air quality deterioration becomes "significant" is essentially subjective, and is often logically dependent upon a large number of factors which vary from location to location. Accordingly, the proposed regulations supporting this alternative plan would ensure that the rate of deterioration is minimized in all areas and requires State decision-making, with public participation, on the question of whether the deterioration resulting from particular sources would be considered "significant." In order to accomplish this, the regulations incorporate the following four features:

All major new or modified sources would be required to incorporate Best Available Control Technology, as defined previously, thus insuring that deterioration by any major source is held to the lowest practicable minimum regardless of the air quality in the surrounding area.

Any proposed source would be required to submit detailed information to the State concerning the amount and type of emissions anticipated, and the projected impact of those emissions on the air quality in the surrounding areas. The requirement for this type of information is intended to insure that adequate information is available on which to base an objective assessment regarding the significance of any resulting deterioration. Although not specifically required by the proposed regulations, it is anticipated that in many cases the State or local agency would analyze this information in relation to other sources impacting on air quality in the area. This would permit identification of existing sources which could be candidates for additional emission control capable of minimizing or offsetting the potential deterioration attributed to the proposed new source. In any event, the analysis of this type of information would insure that the decisions regarding the significance of any projected deterioration would be based upon the best information available.

The State would be required to make full disclosure of all pertinent information and solicit public participation in the determination of what constitutes significant deterioration. As a minimum, the State would serve public notice of the proposed construction or modification, would make full disclosure of source and State generated information, and would allow at least 30 days for public comment. However, the regulations for this alternative would not preclude the holding of public hearings if the proposal is of sufficient public interest. The intent of this requirement is to insure that the definition of significant deterioration is based upon all pertinent air quality data, the attitudes and goals of the affected population, and the socio-economic conditions and requirements of the affected area.

The State would then determine whether the source would create significant deterioration of air quality. The regulations would provide sufficient legal authority for all States to prohibit construction or modification which could result in significant deterioration of air quality, but pertinent information would also be submitted to the Environmental Protection Agency for review. The Administrator could disapprove the State's determination of what constitutes Best Available Control Technology, or could disapprove the procedures by which the determination of significant deterioration was made, but so long as the required procedures were followed the Administrator would not have authority to reverse the State's judgment of what constitutes significant deterioration in any specific location.

Under this alternative, sufficient information, procedures, and legal authority would be provided to make a valid determination of what constitutes significant deterioration, in the view of the affected public, and to enforce the prevention of that deterioration regardless of any unique circumstances surrounding any individual case. However, sufficient safeguards would be included to insure that a State's determination that the resulting deterioration was not significant could not be used to circumvent other requirements dealing with National Ambient Air Quality Standards, New Source Performance Standards, State emission limitations, or any other legal requirements designed to protect the quality of the ambient air.

This approach has the major advantage that the governmental units and citizens most affected by decisions on maintenance of air quality would make those decisions, based upon conditions existing at that time, thereby ensuring that local requirements and preferences with regard to matters such as land use, economic development, and use of natural resources are taken into consideration. Thus, economic growth would not be arbitrarily restricted to conform to national views on nationwide deterioration, but, rather, would be subjected to State and local decisions as to the form, direction, extent, and distribution of such growth and as to the conditions to be imposed on the construction or modification of facilities which could have a significant impact on air quality.

A somewhat modified version of this plan is currently in restricted use in portions of several States. In these cases, the States have established extremely low ambient air quality standards for selected regions within their boundaries, in most cases to protect State parks, national forests, scenic vistas, etc. This is, of course, within the rights of all States, but many States do not currently have adequate legal authority to prevent construction or modification unless the national ambient air quality standards are threatened. It would, therefore, be necessary to promulgate Federal regulations of the type presented herein to give all States the required legal authority until they can pass suitable State legislation.

Although this alternative is intuitively attractive for a variety of reasons, it is not without drawbacks. There is some justifiable concern that State and local agencies and populations could be subjected to undue pressure exerted by industries desirous of locating within a particular area, and that this pressure could cause definitions of "significant" which might not be in the best long-range interests of these populations. Additionally, the local definition plan uses what is essentially a "sliding baseline" in that deterioration is always measured relative to the current air quality. Hence, there is no control over the ultimate level of deterioration, which could progress in finite increments up to the level of the secondary standards. A final major disadvantage of this alternative is that the long range impact of deterioration is not completely restricted to the local area. The proposed regulations associated with this plan require public comment from within "the area significantly affected by the potential emissions." However, it is entirely possible that the cumulative effects of a large number of "growth-oriented" regions could have a significant impact on the air quality of neighboring "clean-air oriented" regions, and these neighboring regions would thereby lose control over their own environment. Although the feature that the State, rather than the local population, has final authority for the definition of significant tends to mitigate this concern, it nevertheless remains a problem which could lead to inequitable treatment of some areas.

IV. Area Classification Plan

One of the major problems associated with the previously discussed Air Quality Increment Plan involves the possible inequities resulting from establishment of a single air quality increment applicable nationwide. The fourth alternative proposed herein partially alleviates this problem by defining two nationwide air quality increments which would be applied to the appropriate areas of the State compatible with the long range growth patterns and development objectives associated with each of those areas. The application of this proposed alternative would be similar to that of the Air Quality Increment Plan except for the features noted herein.

The proposed regulations would require each State to identify each area of its territory as belonging to one of the two "zones" of allowable deterioration. The following table presents the proposed zones with their associated deterioration increments.

PERMISSIBLE DETERIORATION INCREMENTS ($\mu g/m^3$)

	Particulate Matter		Sulfur Dioxide		
	Annual	24 Hour	Annual	24 Hour	3 Hour
Zone I	5	15	2	5	25
Zone II	10	30	15	100	300

Deterioration above the Zone II levels would constitute, in the Administrator's judgment, a significant deterioration in most areas of the country. This level is identical to that of the Air Quality Increment Plan and, as discussed under that Plan, would permit a reasonable amount of growth potential so long as well developed air pollution control strategies are applied. This increment would provide a strong incentive for improved control technology, would prevent construction of new sources in locations conducive to higher than normal ground level concentrations, would prevent clustering of major new sources, and would require that both new and existing sources employ increasingly effective control technology in order to maintain a reasonable growth capability for the region. The proposed regulations specify that the Zone II criteria would become effective nationwide upon promulgation of these regulations.

Zone I represents an extremely stringent deterioration criteria, and application of this increment would prohibit the introductoin of even one small fossil fuel fired power plant, municipal incinerator, medium apartment complex (assuming oil heating), or any other medium scale residential or commercial development using normal emission control techniques. However, this does not necessarily mean that development would be totally prohibited: It means only that new emissions would be permitted only to the degree that current emissions are reduced. Strong incentives are therefore inherent for improved emission control technology and introduction of low-pollution development. Although Zone I could be applied to a semi-urban or urban area in which it was desired to inhibit further development; it is anticipated that Zone I would normally be applied to those ultra-clean areas such as national and state forests and parks, and other recreational areas in which it is desired to maintain essentially no deterioration of air quality.

The regulations proposed in support of this plan also contain provisions for exceptions to the required deterioration increments in special circumstances. It could be in the public interest to permit some isolated areas a higher increment in circumstances under which the resulting deterioration would not be considered significant. Each of these cases would require public hearings in the areas involved, and would require specific approval by the Administrator. It is expected that these cases would exist infrequently, but they might occur due to the unusual availability of raw materials in the area; or in order to support comprehensive, long-range development plans; or to avoid the necessity for locating relatively pollution-prone industries near populated areas where a larger deterioration increment might be available. As further insurance that the State's request for an exception is justified, the administrator would consider the extent to which the State has applied Zone I criteria as an expression of good faith efforts to comply with the intent of the proposed regulations.

The proposed regulations require that States accomplish initial zoning within six months from the date of promulgation of these regulations. Retention of the Zone II criteria in an area would be considered the norm, and the degree of public participation would be at the State's discretion. Assignment of Zone I would require that public hearings be held in the region affected due to the severe growth restrictions inherent in the Zone I criteria. If any State fails to submit the required plan, all areas of the State would remain under the Zone II criteria as assigned upon promulgation of these regulations.

Subsequent to submittal of the initial zoning plan, changes in the plan could be accomplished to accommodate changes in growth patterns and development plans; such proposed changes would be presented at public hearings in each of the affected areas.

It is important to note that the proposed regulations would not allow the Administrator to disapprove any assignment of zones made by the State so long as the required procedures are carried out. By requiring the establishment of these zones, and specifying the maximum allowable deterioration associated with each zone, it is not the Administrator's intention to establish how the land in any particular area should be used, nor to establish any particular relationship between current air quality and assigned zoning. Areas assigned to Zone I could retain an option for significant growth capability: The very stringent air quality criteria require only that any growth be restricted to a form which has a low air pollution potential. Use of the land is the prerogative of the State and local population, and hence complete flexibility is provided, consistent with prevention of significant deterioration as appropriate for each zone. In making the determinations necessary to implement this alternative, the States would be encouraged to consider many factors, including but not limited to; growth projections and local land use plans; existing land use; location of raw materials and markets; and existing constraints on land use imposed by other State, local, and Federal requirements.

Unfortunately, as with the Air Quality Increment Plan, the type of air quality data needed to accurately establish the baseline air quality for this alternative is not currently available in many clean areas of the country. It would therefore become necessary to estimate this information by use of diffusion modeling and other appropriate techniques. To eventually alleviate these problems, the plan would establish additional air quality monitoring requirements around new major sources.

Despite the data availability problems, this alternative has some very attractive features. Unlike the other ceiling plans proposed herein, this plan ensures that future developmental patterns can be based on rational planning rather than on previous growth patterns which form the basis for most other ceiling approaches. This alternative also seems superior to the "local definition" plan, in that it is not based on case-by-case local projections of growth patterns which may not be desirable from an overall point of view, but requires that the State establish long range growth patterns and goals. In essence, this plan puts emphasis on longer range strategic planning as opposed to short range case-by-case decisions. The plan also gives States the flexibility needed to meet their long range growth goals without the imposition of arbitrary constraints.

This alternative also has some drawbacks. The proposed regulations require that the State make very difficult and comprehensive decisions impacting on land use in a tight time frame. The results of these State decisions would have far reaching implications on the future of many States. There are no firm criteria which a State may use to make its decisions and as a result, the decisions would be somewhat subjective in nature. The required decisions also would force the States to exercise great care in establishing the boundaries between zones so that the effect of a source in a Zone II does not cause the air quality in a Zone I to increase more than allowed. This problem becomes more severe along State boundaries and would require cooperation among States. Nevertheless, of the available alternatives for preventing significant deterioration, this plan appears to be superior in many, if not all, respects.

OTHER PLANS OF INTEREST

Although the preceding plans (including variations and combinations of these) represent the more feasible alternatives for preventing significant deterioration, the Administrator has given a variety of other plans careful consideration. Two of the more interesting are based upon a volumetric emission density restriction, and application of an emission charge or penalty.

The application of a volumetric emission density restriction is the essential feature of a plan proposed by the Sierra Club. Under this plan, significant deterioration for most pollutants would be defined as either a small incremental increase, or a percentage increase in pollutant concentration, averaged either over that volume of air within one km of the source, or that ground level area within one km of the source, whichever gives the higher value. Although the impact of this criteria is highly dependent upon the instantaneous local meteorological conditions, the philosophy is essentially similar to that of more conventional air quality and emission limitation plans.

The fundamental difference is that the Sierra Club plan considers an exceptionally small area (or volume) on which to base the deterioration criteria. This requires that, in order to restrict regional deterioration to reasonable levels, the allowable increment applied to the one km baseline area must be very small. The result is that this plan would permit a large number of small sources to be uniformly distributed throughout the region, but would completely prohibit construction of conventional coal fired power plants and other major sources of the type listed in the proposed regulations, unless those sources were located in areas in which major improvements in air quality had been accomplished after the baseline level had been established. This feature would tend to drive all new major sources of air pollution into the more heavily populated sections of the country. This anomaly is the result of choosing too small an area (or volume) over which to average the emissions, and is no more a failure of the volumetric averaging technique than any technique in which emission density restrictions are applied to an excessively small area. Conversely, if too large an area is chosen, then the peak concentrations in a local area may become excessive even though total atmospheric loading is reduced. However, the volumetric averaging plan is not proposed herein primarily because the computation technique is unnecessarily complex and is only indirectly representative of the physical characteristics of pollution sources, the baseline data required (particularly for particulates) is largely nonexistent, the monitoring and control costs would be excessive, and simpler plans could be developed to achieve substantially the same results without the practical application problems inherent in the volumetric averaging concept.

A second type of plan containing interesting ramifications but which had to be rejected for practical reasons was one based on the imposition of emission charges. The general reasoning behind such a plan is that secondary NAAQS comprise adequate upper limits on pollutant concentrations, but air quality superior to those limits is desirable. The emission charge would provide a continuous incentive for sources to seek and apply emission controls to minimize their emission charges. The collective effect of these individual cost minimizations would be to maintain air quality at levels superior to NAAQS in most areas. The level of air quality maintained would be a function of the emission charge rate, the development potential of the area, and the state-of-the-art of emission control.

The major advantages of this plan are that the cost of emitting would be "internalized", i.e., it would be taken into consideration in the normal economic appraisal of plant design and location alternatives. Sources would have numerous options as to control method, cost, and degree of control from which to make the optimum choice. The state-of-the-art of emission control would be continuously advanced. Finally, the means of enforcement would be charge collection for which there is ample precedent and experience.

Unfortunately, several problems attend such a plan, particularly in view of the requirement that "significant deterioration" be prevented in any portion of any State. If significant deterioration of air quality is to be prevented by the emission charge, some relationship between the charge rate and the resultant air quality must be found. Such a relationship is not presently available. Even if this relationship were available, the emission charge rate would have to vary from place to place to offset the variation in developmental potential offered by different land areas and the variable capacity of the air to disperse waste under different meteorological and topographical conditions. But most important, an emission charge would not guarantee that significant deterioration could not take place in some portions of some States. Consequently, the emission charge, while possessing some desirable attributes, does not appear to be a practical means of preventing significant deterioration of air quality.

Problems Common to All Deterioration Plans

Jurisdictional Ambiguities—There is a potential jurisdictional problem associated with all plans proposed to prevent significant deterioration. The problem could arise whenever a source in one State is degrading the air quality of a second State. The problem is compounded when small deterioration increments or ceilings are established because a relatively small external source may "use up" a large portion of the growth potential available to the neighboring regions. The region in question would have no apparent resource, and its own growth potential would thereby be curtailed. The recent court order has established the Administrator's authority to prevent significant deterioration regardless of the source's location, but the Administrator has no criteria by which he can dictate whether the allowable deterioration should be allocated to an internal or external source. Hence, in cases such as this, any allowable deterioration increment would have to be allocated on a "first come, first served" basis, regardless of the location of the source.

De Facto Land Use Decisions—It has been pointed out previously that all currently practical plans to prevent significant deterioration essentially impose restrictions on the use of the air resource, and hence, use of land. Depending upon the plan selected, these restrictions would be imposed by local, State, or Federal decisions. However, in all cases, there is a certain amount of flexibility inherent in the regulations regarding land use, and the States are encouraged to exploit this flexibility in order to make most effective use of the available resources. This exploitation is expected to take the form of State legislation permitting State determination of the type and amount of developmental growth authorized to "use" the allowable air quality increment. Complimentary to enactment of this legislation would be long range planning actions to determine the type of growth desired, any constraints on this growth in addition to air quality deterioration constraints, and any additional means for air quality improvements which might, in turn, make possible additional growth. In the absence of such State action, it can be anticipated that the allowable deterioration increment will be used up quite rapidly in many areas, and that this use would be made on a "first come—first served" basis without regard for the longer range requirements and goals of the region. In effect, Federal promulgation of any of the alternatives proposed herein will force States to develop and implement additional land use planning activities through which the available air resource can be allocated for the optimum purposes. These activities will be actively encouraged by the Administrator, and it is planned that eventually the prevention of significant deterioration will be accomplished solely through State Implementation Plan procedures, although such SIPs would have to be in accordance with Federal guidelines.

The Impact of Urban Sprawl—This problem refers to the characteristic trend of most urban areas to spread in to the surrounding countryside thereby creating gradual air quality deterioration due to reseidential heating and associated small but numerous sources of emission. There is no adequate deterioration plan which can automatically accommodate this deterioration, and yet urban sprawl can use up a large portion of any allowable deterioration increment. The periodic development of emission inventories, and routine air quality sampling, will track the effect of this sprawl, but it must also be projected into the future in order to insure that its impact, in addition to the impact of new major sources, does not violate the deterioration restrictions. For this reason, it may become desirable to include requirements for growth projections in the proposed regulations in a manner similar to those of the recently promulgated complex source regulations.

The Impact of Fuel Switching—Many sources have the capability to switch among various types of fuel—i.e., natural gas, low and high sulfur oil, low and high sulfur coal, etc.—thus altering their emission levels. Although there is generally sufficient low sulfur fuel available, in conjunction with other emission reduction techniques, to attain and maintain the national standards nationwide, there is not currently sufficient fuel of this type (particularly low sulfur coal) to satisfy all potential users. Accordingly, it may become necessary for some sources in relatively clean areas to temporarily switch to higher sulfur fuel in order to make available additional low sulfur

fuel for use in areas in which the ambient air quality could have an adverse impact on public health. Because pollutant emissions are approximately proportional to the sulfur content of the fuel (i.e., a switch from 1 percent to 3 percent sulfur coal would approximately triple sulfur oxides emissions) this procedure would tend to temporarily degrade air quality in clean areas. A preliminary review indicates that most plans to prevent deterioration could accommodate this temporary increase in emissions. However, it is conceivable that there may be unusual cases, as where a source might have to switch from natural gas to coal, which could not be accommodated within some proposed deterioration limits. The Administrator solicits all available information concerning cases of this type, and is interested in comments on the advisability of including variance procedures in the proposed regulations to accommodate temporary emission increases of this type.

The Right of Regional Self-Sufficiency—It is desirable that all participants in this rulemaking carefully consider the full impact of deterioration restrictions, particularly as they would influence relatively clean areas in which the allowable deterioration increments might be very small. Due impart to the threat to the NAAQS, most large urban areas can no longer provide enough electrical power to supply their own needs; their power must come from non-urban, relatively clean, areas. However, in the future it may develop that even non-urban areas will not be able to supply their own power needs due to the threat of significant deterioration. For example, Iowa can be considered as a typical agricultural State with only nominal heavy industry. It is estimated that by 1980, the rural areas of Iowa will require approximately 1,700 megawatts of additional power per year. The production of that power, with application of best available control technology and regionally available fuel, would produce approximately 160,000 tons of sulfur dioxide per year, or an approximately fifty percent increase in emissions over the 1970 levels for those areas. Any deterioration plan must consider factors such as these to insure that the impact on each individual region can be tolerated and is consistent with the public interest.

OPPORTUNITY FOR PUBLIC PARTICIPATION

The Administrator solicits widespread public involvement in all aspects of the significant deterioration issue, and interested indivduals and groups are encouraged to actively participate in this rulemaking. In order to assist in the development of objective comments and debate, the Environmental Protection Agency's Office of Public Affairs and the Regional Offices will have available sets of technical documentation summarizing types and sizes of typical sources, typical emissions, estimated costs of emission controls, breakouts of total national emissions by type and type source, distribution of current emissions by AQCR, and associated data of value in assessing the impact of alternative deterioration plans. Copies of this information will be made available to the public upon request. Requestors should reference this issue of the FEDERAL REGISTER.

There are several questions on which EPA is particularly interested in receiving public comments and relevant data. One of the most important involves the concepts of "deterioration of air quality" and "significant deterioration of air quality." With respect to the term "deterioration," the question arises as to what type of change in ambient air quality represents "deterioration." With respect to "significant deterioration," questions arise as to whether it should be interpreted in the absolute or relative sense, and whether it should be determined on a national, State, or regional basis. Attention is therefore expressly directed to, and public comment requested on, the questions of what might appropriately be considered "deterioration" and, further, what degree of deterioration might appropriately be considered "significant."

Other questions on which public comment and relevant data are particularly requested include: whether, if an Air Quality Increment Plan or Emission Limitation Plan is adopted, the specific increments or limitations proposed herein are appropriate to prevent significant deterioration without severely disrupting growth and development; whether it is necessary and appropriate to require application of best available control technology as a minimum requirement of any plan for preventing significant deterioration; and whether the proposed definition of best available technology is appropriate. EPA also requests information which would explicitly define the possible economic impact of each of the proposed alternatives. Finally, the fact that four alternatives are specifically presented does not preclude interested parties from offering others for consideration.

Public hearings on these proposals are scheduled as follows:

Washington, D.C.: August 27 and 28
Time and place to be announced.

Atlanta: September 4 and 5; 10:00 a.m.
Civic Center
395 Piedmont Avenue, N.E.

Dallas: September 5 and 6; 9:00 a.m.
Environmental Protection Agency
Suite 1000
Conference Rooms A and B
1600 Patterson Street

Denver: September 5 and 6; 9:00 a.m.
U.S. Post Office Auditorium
Room 269
1823 Stout Street

San Francisco: September 5 and 6; 9:00 a.m. to 5:00 p.m.
Hyatt Regency Hotel
Seacliff Room
Embarcadero Center

Written comments in triplicate may also be submitted to the Office of Air Quality Planning and Standards, Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attn: Mr. Padgett. All relevant comments received not later than 90 days after the date of publication of this notice will be considered. Receipt of comments will be acknowledged but substantive responses will not be provided. Comments received will be available for public inspection during normal business hours at the Office of Public Affairs, 401 M Street, SW., Washington, D.C. 20460.

These alternative amendments are being proposed pursuant to an order of the U.S. Court of Appeals for the District of Columbia Circuit in the case of Sierra Club, et al., V. Administrator of EPA, case No. 72–1528. This notice of proposed rulemaking is issued under the authority of section 301(a) of the Clean Air Act as amended (42 U.S.C. 1857, et seq.).

Dated: July 12, 1973.

ROBERT W. FRI,
Acting Administrator,
Environmental Protection Agency.

Subpart A, Part 52, Chapter I, Title 40, Code of Federal Regulations, is proposed to be amended by adding to § 52.21 a new paragraph (b) and one of the paragraphs herein designated (c), (d), (e), and (f):

§ 52.21 Significant deterioration of air quality.

(a) Subsequent to May 31, 1972, the Administrator reviewed State implementation plans to determine whether or not the plans permit or prevent significant deterioration of air quality in any portion of any State where the existing air quality is better than one or more of the secondary standards. The review indicates that State plans generally do not contain regulations or procedures specifically addressed to this problem. Accordingly, all State plans are disapproved to the extent that such plans lack procedures or regulations for preventing significant deterioration of air quality in portions of States, where air quality is now better than the secondary standards. The disapproval applies to all States listed in Subparts B through DDD of this part. Nothing in this section shall invalidate or otherwise affect the obligations of States, emission sources, or other persons with respect to all portions of plans approved or promulgated under this part.

(b) For purposes of this section:

(1) The term "baseline air quality concentration" means the maximum air quality concentrations measured or estimated in an area in which the proposed source has a significant effect representative of the year 1972 plus the estimated increase in those concentrations caused by all sources granted approval for construction prior to the date of proposal of this section in the FEDERAL REGISTER but not operating during the year 1972.

(2) The term "baseline emissions" means the annual emissions for the year 1972 plus the estimated emissions from

all sources granted approval for construction prior to the date of proposal of this section in the FEDERAL REGISTER but not operating during the year 1972.

(3) The term "potential emission rate" means the total weight rate at which sulfur dioxide or particulate matter, in the absence of any air cleaning device, would be emitted from a stationary source when such source is operated at its rated capacity. Total weight rates shall be those actually expected for a specified source but in the absence of such information, it shall be estimated on the basis of the emission factors specified in "Compilation of Air Pollution Emission Factors," Office of Air Programs Publication No. AP-42, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, February 1972.

(4) The term "air cleaning device" means any article, machine, equipment, or other contrivance, chemical or process, the use of which may eliminate, reduce or control the emission of air pollutants into the atmosphere.

(c) *Regulation for preventing significant deterioration of air quality through application of an air quality increment.* (1) This paragraph applies to sources identified below, the construction or modification of which is commenced after the date of proposal of this paragraph in the FEDERAL REGISTER.

(i) Any new or modified stationary source of a type listed below:

(*a*) Fossil-Fuel Fired Steam Electric Plants of more than 1000 million B.t.u. per hour heat input.

(*b*) Coal Cleaning Plants (thermal dryers).

(*c*) Kraft Pulp Mill Recovery Furnaces.

(*d*) Portland Cement Plants.

(*e*) Primary Zinc Smelters.

(*f*) Iron and Steel Mill Metallurgical Furnaces.

(*g*) Primary Aluminum Ore Reduction Plants.

(*h*) Primary Copper Smelters.

(*i*) Municipal Incinerators capable of charging more than 250 tons of refuse per day.

(*j*) Sulfuric Acid Plants.

(*k*) Petroleum Refineries.

(*l*) Lime Plants.

(*m*) Phosphate Rock Processing Plants.

(*n*) By-Product Coke Oven Batteries.

(*o*) Sulfur Recovery Plants.

(*p*) Carbon Black Plants (furnace process).

(ii) Any new or modified stationary source not identified in subdivision (i) of this subparagraph having a total annual potential emission rate on any premises equal to or greater than 4000 tons for any of the following pollutants.

(*a*) Particulate matter.

(*b*) Sulfur dioxide.

(*c*) Nitrogen oxides.

(*d*) Hydrocarbons.

(*e*) Carbon monoxide.

(2) No owner or operator shall commence construction or modification of a source to which this paragraph is applicable unless:

(i) The State in which the source is or will be located determines in accordance with this paragraph:

(*a*) That the effect on air quality of the source or modification of the source considered with the effect on air quality of existing, new or modified sources, will not cause the air quality to be increased above the baseline air quality concentration by more than any of the following:

(*1*) 10 $\mu g/m^3$ of particulate matter, annual geometric mean.

(*2*) 30 $\mu g/m^3$ of particulate matter, 24-hour maximum.

(*3*) 15 $\mu g/m^3$ of sulfur dioxide, annual arithmetic mean.

(*4*) 100 $\mu g/m^3$ of sulfur dioxide, 24-hour maximum.

(*5*) 300 $\mu g/m^3$ of sulfur dioxide, 3-hour maximum.

(*b*) That the source or modified portion of the source will be constructed and operated to employ best available control technology for minimizing emissions of particulate matter, sulfur dioxide, nitrogen oxides, hydrocarbons, and carbon monoxide.

(ii) The Administrator approves the State's determination under subdivision (i) of this subparagraph.

(3) In making the determinations required by subparagraph (2)(i) of this paragraph, the State shall, as a minimum, require the source to submit: Site information, plans, descriptions, specifications, and drawings showing the design of the source, calculations showing the nature and amount of emissions, a description of the manner in which the source will be operated and controlled, the cost of control, measurements or estimates of existing air quality levels, and the impact that the construction or modification will have on air quality levels and the air environment around the source.

(4)(i) In determining best available control technology, the following shall be considered:

(*a*) Reasonably available control technology as defined in Appendix B to Part 51 of this chapter,

(*b*) The process, fuels, and raw materials employed,

(*c*) The engineering aspects of the application of various types of control techniques,

(*d*) Process and fuel changes, and

(*e*) The cost of the application of the control techniques, process changes, alternative fuels, etc.

(ii) A system of control which is determined by the State and approved by the Administrator to be adequate to comply with standards of performance for new stationary sources under Part 60 of this chapter may be deemed to constitute best available control technology.

NOTE: Under the alternative definition of Best Available Control Technology, as set forth in the preamble, subdivision (iii) would be eliminated.

(iii) In the case of sources identified at subparagraph (1)(i)(*a*) of this paragraph, best available control technology for sulfur oxides shall consist, as a minimum, of a control strategy determined to be capable of complying with standards of performance for new stationary sources specified in Part 60 of this chapter. However, individual analysis of each new or modified source which considers the availability of fuel and the cost and efficiency of other or additional control strategies may result in additional control for individual plants.

(5) Subject to subdivision (x) of this subparagraph, the owner or operator of a source subject to the provisions of subparagraph (2) of this paragraph shall install, or cause to be installed, a minimum of two continuous ambient air quality monitoring instruments for sulfur dioxide and/or two intermittent ambient air quality monitoring instruments for particulate matter.

(i) The State shall specify which pollutant(s) the source shall monitor.

(ii) When source, meteorological and/or terrain conditions warrant, the State may require additional samplers above the minimum number specified in this paragraph.

(iii) Such systems shall include one site equipped to monitor wind speed and wind direction.

(iv) The instruments shall meet the performance and operating specifications of § 51.17(a)(1) of this chapter.

(v) The locations of such instruments shall be located in areas of expected maximum concentrations determined by meteorological diffusion modeling or best judgment.

(vi) The instruments shall be maintained, calibrated, and operated in accordance with the methods prescribed by the manufacturer of such instrument(s) and other procedures consistent with good engineering practice.

(vii) The owner or operator of the source subject to this paragraph shall maintain a record of all measurements required by this subparagraph. Measurement results shall be summarized monthly and reported to the State semiannually, and shall be submitted within 45 days after the end of the reporting period. Reporting periods are January 1–June 30 and July 1–December 31, with the initial reporting period starting as indicated in subdivision (viii) of this subparagraph.

(viii) The continuous monitoring and recordkeeping requirements of this subparagraph shall become applicable 6 months after initial start-up of the source.

(ix) Information collected pursuant to this subparagraph shall be made available to the Administrator upon his request.

(x) The State may demonstrate to the Administrator that the existing air quality surveillance system in the area in which a source is to be constructed or modified meets the requirements of this subparagraph.

(6)(i) Prior to making the determinations required by subparagraph (2)(i) of this paragraph, the State shall provide opportunity for public comment on the information submitted by the owner or

operator and on the State's analysis of the effect of such construction or modification on ambient air quality. Opportunity for public comment shall include, as a minimum:

(*a*) Availability for public inspection, in at least one location in the region affected, of the information submitted by the owner or operator, and the State or local agency's analysis of the effect on air quality,

(*b*) a 30-day period for submittal of public comment, and

(*c*) a notice by prominent advertisement in the region affected of the location of the source information and analysis specified in subparagraphs (2)(i), and (3) of this paragraph.

(ii) Within 90 days from an owner or operator's submission of the information required under subparagraph (3) of this paragraph, the State shall publicly announce and transmit in writing to the Administrator its determinations under subparagraph (2)(i) of this paragraph, together with:

(*a*) Copies of all information prepared by the State under subparagraph (2)(i) of this paragraph; (*b*) a copy of the public notices issued in conformity with subdivision (i) of this subparagraph and (*c*) a statement that the State has complied with the requirements of this paragraph.

(7)(i) The Administrator will notify the State of his determination and the reasons for any disagreement under subparagraph (2)(ii) of this paragraph no later than 25 days following the State's submission of the information required under subparagraph (6)(ii) of this paragraph.

(ii) The State will notify the owner or operator in writing of the approval or denial to construct or modify a source within 120 days of the owner or operator's submission of the information required under subparagraph (3) of this paragraph.

(8) The Administrator may cancel an approval to construct if the construction is not begun within two years from the date of issuance, or if during the construction, work is suspended for one year.

(9) Approval to construct or modify shall not relieve any owner or operator of the responsibility to comply with all local, State, or Federal regulations which are part of the applicable plan.

(d) *Regulation for preventing significant deterioration of air quality through application of an emission ceiling.* (1) This paragraph applies to sources identified below, the construction or modification of which is commenced in any Air Quality Control Region (AQCR) classified Priority Ia or III with respect to sulfur dioxide and/or particulate matter, after the date of proposal of this paragraph in the FEDERAL REGISTER.

(i) Any new or modified stationary source of a type listed below:

(*a*) Fossil-Fuel Fired Steam Electric Plants of more than 1000 million B.t.u. per hour heat input.

(*b*) Coal Cleaning Plants (thermal dryers).

(*c*) Kraft Pulp Mill Recovery Furnaces.

(*d*) Portand Cement Plants.

(*e*) Primary Zinc Smelters.

(*f*) Iron and Steel Mill Metallurgical Furnaces.

(*g*) Primary Aluminum Ore Reduction Plants.

(*h*) Primary Copper Smelters.

(*i*) Municipal Incinerators capable of charging more than 250 tons of refuse per day.

(*j*) Sulfuric Acid Plants.

(*k*) Petroleum Refineries.

(*l*) Lime Plants.

(*m*) Phosphate Rock Processing Plants.

(*n*) By-Product Coke Oven Batteries.

(*o*) Sulfur Recovery Plants.

(*p*) Carbon Black Plants (furnace process).

(ii) Any new or modified stationary source not identified in subdivision (i) of this subparagraph having a total annual potential emission rate on any premises equal to or greater than 4000 tons for any of the following pollutants:

(*a*) Particulate matter.

(*b*) Sulfur dioxide.

(*c*) Nitrogen oxides.

(*d*) Hydrocarbons.

(*e*) Carbon monoxide.

(2) No owner or operator shall commence construction or modification of a source to which this paragraph is applicable unless:

(i) The State in which the source is or will be located determines in accordance with this paragraph:

(*a*) That the source or modified portion of the source considered with the cumulative effect on emission levels of all existing, new or modified stationary sources will not cause the maximum allowable emissions as determined by subparagraph (9) of this paragraph to be exceeded.

(*b*) That the source or modified portion of the source will be constructed and operated to employ best available control technology for minimizing emissions of particulate matter, sulfur dioxide, nitrogen oxides, hydrocarbons, and carbon monoxide.

(ii) The Administrator approves the State's determination under subdivision (i) of this subparagraph.

(3) In making the determinations required by subparagraph (2)(i) of this paragraph, the State shall, as a minimum, require the source to submit: Site information, plans, descriptions, specifications, and drawings showing the design of the source, calculations showing the nature and amount of emissions, a description of the manner in which the source will be operated and controlled, and the cost of control.

(4) (i) In determining best available control technology, the following shall be considered:

(*a*) Reasonably available control technology as defined in Appendix B to Part 51 of this chapter,

(*b*) The process, fuels, and raw materials employed,

(*c*) The engineering aspects of the application of various types of control techniques,

(*d*) Process and fuel changes, and

(*e*) The cost of the application of the control techniques, process changes, alternative fuels, etc.

(ii) A system of control which is determined by the State and approved by the Administrator to be adequate to comply with standards of performance for new stationary sources under Part 60 of this chapter may be deemed to constitute best available control technology.

(iii) In the case of sources identified at subparagraph (1)(i)(*a*) of this paragraph, best available control technology for sulfur oxides shall consist, as a minimum, of a control strategy determined to be capable of complying with standards of performance for new stationary sources specified in Part 60 of this chapter. However, individual analysis of each new or modified source which considers the availability of fuel and the cost and efficiency of other or additional control strategies may result in additional control for individual plants.

NOTE: Under the alternative definition of Best Available Control Technology, as set forth in the preamble, subdivision (iii) would be eliminated.

(5) (i) Prior to making the determinations required by subparagraph (2)(i) of this paragraph, the State shall provide opportunity for public comment on the information submitted by the owner or operator and on the agency's review of such information. Opportunity for public comment shall include, as a minimum:

(*a*) Availability for public inspection, in at least one location in the region affected, of the information submitted by the owner or operator, and the State or local agency's analysis of such information.

(*b*) A 30-day period for submittal of public comment, and

(*c*) A notice by prominent advertisement in the region affected of the location of the source information and analysis specified in subparagraphs (2)(i), and (3) of this paragraph.

(ii) Within 60 days from an owner or operator's submission of the information required under subparagraph (3) of this paragraph, the State shall also publicly announce and transmit in writing to the Administrator its determinations under subparagraph (2)(i) of this paragraph, together with:

(*a*) A copy of the public hearing notices issued in conformity with subdivision (i) of this subparagraph and

(*b*) A statement that the State has complied with the requirements of this paragraph.

(6) (i) The Administrator will notify the State of his determination and reasons for any disagreement under subparagraph (2)(ii) of this paragraph no later than 25 days following the State's submission of the information required under subparagraph (5)(ii) of this paragraph. (ii) The State will notify the

owner or operator in writing of the approval or denial to construct or modify a source within 90 days of an owner or operator's submission of the information required under subparagraph (3) of this paragraph.

(7) The Administrator may cancel an approval to construct if the construction is not begun within two years from the date of issuance, or if during the construction, work is suspended for one year.

(8) Approval to construct or modify shall not relieve any owner or operator of the responsibility to comply with all local, State, or Federal regulations which are part of the applicable plan.

(9) The maximum allowable emissions for an Air Quality Control Region shall be the following:

(i) For particulate matter the product of the area (square miles) for an AQCR and 3 tons of particulate matter/year/square mile or 120 percent of the baseline emissions for particulate matter, whichever is greater.

(ii) For sulfur oxides the product of the area (square miles) of an AQCR and 10 tons of sulfur dioxide/year/square mile or 120 percent of the baseline emissions for sulfur dioxide, whichever is greater.

(10) The State shall make available to the Administrator upon his request:

(i) The baseline emission inventory for particulate matter and sulfur dioxide, and

(ii) An annually updated emission inventory for each affected AQCR for all pollutants to which this paragraph is applicable.

(e) *Regulation for preventing significant deterioration of air quality through a local definition of significant deterioration.* (1) This paragraph applies to sources identified below, the construction or modification of which is commenced after the date of proposal of this paragraph in the FEDERAL REGISTER.

(i) Any new or modified stationary source of a type listed below:

(*a*) Fossil-Fuel Fired Steam Electric Plants of more than 1000 million B.t.u. per hour heat input.

(*b*) Coal Cleaning Plants (thermal dryers).

(*c*) Kraft Pulp Mill Recovery Furnaces.

(*d*) Portland Cement Plants.

(*e*) Primary Zinc Smelters.

(*f*) Iron and Steel Mill Metallurgical Furnaces.

(*g*) Primary Aluminum Ore Reduction Plants.

(*h*) Primary Copper Smelters.

(*i*) Municipal Incinerators capable of charging more than 250 tons of refuse per day.

(*j*) Sulfuric Acid Plants.

(*k*) Petroleum Refineries.

(*l*) Lime Plants.

(*m*) Phosphate Rock Processing Plants.

(*n*) By-Product Coke Oven Batteries.

(*o*) Sulfur Recovery Plants.

(*p*) Carbon Black Plants (furnace process).

(ii) Any new or modified stationary source not identified in subdivision (i) of this subparagraph having a total annual potential emission rate on any premises equal to or greater than 4000 tons for any of the following pollutants.

(*a*) Particulate matter.

(*b*) Sulfur dioxide.

(*c*) Nitrogen oxides.

(*d*) Hydrocarbons.

(*e*) Carbon monoxide.

(2) No owner or operator shall commence construction or modification of a source to which this paragraph is applicable unless:

(i) The State in which the source is or will be located determines in accordance with this paragraph:

(*a*) That the source or modified portion of the source will be constructed and operated to employ best available control technology for minimizing emissions of particulate matter, sulfur dioxide, nitrogen oxides, hydrocarbons, and carbon monoxide.

(*b*) That particulate matter and sulfur dioxide emissions from the source when controlled by best available control technology will not cause significant deterioration in air quality;

(ii) The Administrator approves the State's determination under subdivision (i) (*a*) of this subparagraph.

(iii) The Administrator approves the procedure employed by the State in making the determination required by subdivision (i) (*b*) of this subparagraph.

(3) No owner or operator shall operate a source to which this paragraph applies unless the emission control system determined to constitute best available control technology and approved by the Administrator under this paragraph is fully installed and properly functioning.

(4) No determination or approval under this paragraph shall relieve any source from compliance with any local, State or Federal requirement which is part of the implementation plan, including any standard of performance under Part 60 of this chapter.

(5) (i) In determining best available control technology, the following shall be considered:

(*a*) Reasonably available control technology as defined in Appendix B to Part 51 of this chapter,

(*b*) The process, fuels, and raw material employed,

(*c*) The engineering aspects of the application of various types of control techniques,

(*d*) Process and fuel changes, and

(*e*) The cost of the application of the control techniques, process changes, alternative fuels, etc.

(ii) Except as provided in subdivision (iii) of this subparagraph a system of control which is determined by the State and approved by the Administrator to be adequate to comply with standards of performance for new stationary sources under Part 60 of this chapter may be deemed to constitute best available control technology.

(iii) In the case of sources identified at subparagraph (1) (i) (*a*) of this paragraph, best available control technology for sulfur oxides shall consist, as a minimum, of a control strategy determined to be capable of complying with standards of performance for new stationary sources specified in Part 60 of this chapter. However, individual analysis of each new or modified source which considers the availability of fuel and the cost and efficiency of other or additional control strategies may result in additional control for individual plants.

NOTE: Under the alternative definition of Best Available Control Technology, as set forth in the preamble, subdivision (iii) would be eliminated.

(6) In making the determinations required by subparagraph (2) (i) of this paragraph, the State shall, as a minimum, require the source to submit: site information, plans, descriptions, specifications, and drawings showing the design of the source, calculations showing the nature and amount of emissions, a description of the manner in which the source will be operated and controlled, the cost of control, an estimate of existing air quality levels, and the impact that the construction or modification will have on air quality levels and the air environment around the source.

(7) (i) Prior to making the determinations required by subparagraph (2) (i) of this paragraph, the State shall provide opportunity for public comment on the information submitted by the owner or operator and on the agency's analysis of the effect of such construction or modification on ambient air quality. Opportunity for public comment shall include, as a minimum:

(*a*) Availability for public inspection, in at least one location in the region affected, of the information submitted by the owner or operator, and the State or local agency's analysis of the effect on air quality.

(*b*) A 30-day period for submittal of public comment, and

(*c*) A notice by prominent advertisement in the region affected of the location of the source information and analysis specified in subparagraphs (2) (i), and (3) of this paragraph.

(ii) Within 90 days from an owner or operator's submission of the information required under subparagraph (3) of this paragraph, the State shall also publicly announce and transmit in writing to the Administrator its determinations under subparagraph (2) (i) of this paragraph, together with: (*a*) copies of all information prepared by the State under subparagraph (2) (i) of this paragraph; (*b*) a copy of the public notices issued in conformity with subdivision (i) of this subparagraph and (*c*) a statement that the State has complied with the requirements of this paragraph.

(8) (i) The Administrator will notify the State of his determination and reasons for any disagreement under subparagraph (2) (ii) of this paragraph no later than 25 days following the State's submission of the information required under subparagraph (6) (ii) of this paragraph.

(ii) The State will act within 120 days on an owner or operator's submission of

the information required under subparagraph (6) of this paragraph and will notify the owner or operator in writing of the approval or denial to construct or modify a source.

(9) The Administrator may cancel an approval to construct if the construction is not begun within two years from the date of issuance, or if during the construction, work is suspended for one year.

(f) *Regulation for preventing significant deterioration of air quality through application of area classification.* (1) This paragraph applies to sources identified below, the construction or modification of which is commenced after the date of proposal of this paragraph in the FEDERAL REGISTER.

(i) Any new or modified stationary source of a type listed below:

(a) Fossil-Fuel Fired Steam Electric Plants of more than 1000 million B.t.u. per hour heat input.

(b) Coal Cleaning Plants (thermal dryers).

(c) Kraft Pulp Mill Recovery Furnaces.

(d) Portland Cement Plants.

(e) Primary Zinc Smelters.

(f) Iron and Steel Mill Metallurgical Furnaces.

(g) Primary Aluminum Ore Reduction Plants.

(h) Primary Copper Smelters.

(i) Municipal Incinerators capable of charging more than 250 tons of refuse per day.

(j) Sulfuric Acid Plants.

(k) Petroleum Refineries.

(l) Lime Plants.

(m) Phosphate Rock Processing Plants.

(n) By-Product Coke Oven Batteries.

(o) Sulfur Recovery Plants.

(p) Carbon Black Plants (furnace process).

(ii) Any new or modified stationary source not identified in subdivision (i) of this subparagraph having a total annual potential emission rate on any premises equal to or greater than 4000 tons for any of the following pollutants:

(a) Particulate matter.

(b) Sulfur dioxide.

(c) Nitrogen oxides.

(d) Hydrocarbons.

(e) Carbon monoxide.

(2) For purposes of this paragraph areas of a State classified as Zone I or Zone II shall be limited to increases in pollutant concentrations shown below:

AREA CLASSIFICATION

Pollutant	Zone I	Zone II
Particulate matter:		
Annual geometric mean	5	10
24-hour maximum	10	[illegible]
Sulfur dioxide:		
Annual arithmetic mean	2	15
24-hour maximum	5	100
3-hour maximum	25	300

(3) (i) All areas of all States are classified as Zone II as of the effective date of this regulation.

(ii) The State may, within six (6) months subsequent to the effective date of this regulation:

(a) Submit to the Administrator, after a public hearing has been held, a designation showing certain areas of the State which are classified Zone I.

(b) Submit for the Administrator's approval plans showing certain limited areas of the State which may be allowed to increase concentrations of particulate matter and sulfur dioxide up to the national ambient air quality standards provided that:

(1) Public hearings are held,

(2) Appropriate documentation is submitted to justify such a request. This documentation shall include an explanation of the special characteristics of the area which demonstrates why this area should be allowed to increase in concentration up to the national standard. This explanation shall include such materials as developmental plans, location of raw materials such as mineral deposits, markets, growth and economic projections. In addition, the State must demonstrate that they considered classifying as Zone I areas of he State of recreational, ecological, and scenic value.

(4) No owner or operator shall commence construction or modification of a source to which this paragraph is applicable unless:

(i) The State in which the source is or will be located determines in accordance with this paragraph:

(a) That the effect on air quality concentrations of the source or modification considered with the effect on air quality concentrations of all other existing, new, and modified sources will not cause the baseline air quality concentration in any zone of the State to be increased above the limits shown in subparagraph (2) of this paragraph.

(b) That the source or modified portion of the source will be constructed and operated to employ best available control technology for minimizing emissions of particulate matter, sulfur dioxide, nitrogen oxides, hydrocarbons, and carbon monoxide.

(ii) The Administrator shall approve the State's determination under subdivision (i) of this paragraph.

(5) In makng the determinations required by subparagraphs (4) (i) of this paragraph, the State shall, as a minimum, require the source to submit: Site information, plans, descriptions, specifications, and drawings showing the design of the source, calculations showing the nature and amount of emissions, a description of the manner in which the source will be operated and controlled, the cost of control, an estimate of existing air quality levels, and the impact that the construction or modification will have on air quality levels and the air environment around the source.

(6) (i) In determining best available control technology, the following shall be considered:

(a) Reasonably available control technology as defined in Appendix B to Part 51 of this chapter,

(b) The process, fuels, and raw materials employed.

(c) The engineering aspects of the application of various types of control techniques,

(d) Process and fuel changes, and

(e) The cost of the application of the control techniques process changes, alternative fuels, etc.

(ii) A system of control which is determined by the State and approved by the Administrator to be adequate to comply with standards of performance for new stationary sources under Part 60 of this chapter may be deemed to constitute best available control technology.

(iii) In the case of sources identified at subparagraph (1) (i) (a) of this paragraph, best available control technology for sulfur oxides shall consist, as a minimum, of a control strategy determined to be capable of complying with standards of performance for new stationary sources specified in Part 60 of this chapter. However, individual analysis of each new or modified source which considers the availability of fuel and the cost and efficiency of other or additional control strategies may result in additional control for individual plants.

NOTE: Under the alternative definition of Best Available Control Technology, as set forth in the preamble, subdivision (iii) would be eliminated.

(7) The owner or operator of a source subject to the provisions of subparagraph (4) of this paragraph shall install, or cause to be installed, a minimum of two continuous ambient air quality monitoring instruments for sulfur dioxide and/or two intermittent ambient air quality monitoring instruments for particulate matter.

(i) The State shall specify which pollutant(s) the source shall monitor.

(ii) When source, meteorological and/or terrain conditions warrant, the State may require additional samplers above the minimum number specified in this paragraph.

(iii) Such systems shall include one site equipped to monitor wind speed and wind direction.

(iv) The instruments shall meet the performance and operating specifications of § 51.17(a) (1) of this chapter.

(v) The locations of such instruments shall be located in areas of expected maximum concentrations determined by meterological diffusion modeling or best judgment or in any other area specified by the State.

(vi) The instruments shall be maintained, calibrated, and operated in accordance with the methods prescribed by the manufacturer of such instrument(s) and other procedures consistent with good engineering practice.

(vii) The owner or operator of the source subject to this paragraph shall maintain a record of all measurements required by this subparagraph. Measurement results shall be summarized monthly and reported to the State semi-annually, and shall be submitted within 45 days after the end of the reporting period. Reporting periods are January 1–June 30, July 1–December 31, with the

initial reporting period starting as indicated in subdivision (viii) of this subparagraph.

(viii) The continuous monitoring and recordkeeping requirements of this subparagraph shall become applicable six months after initial start-up of the source.

(ix) Information collected pursuant to this subparagaraph shall be made available to the Administrator upon his request.

(x) The State may demonstrate to the Administrator that the existing air quality surveillance system in the area in which the source is to be constructed or modified meets the requirements of this subparagraph.

(8) (i) Prior to maikng the determinations required by subparagraphs (4) (i) of this paragraph, the State shall provide opportunity for public comment on the information submitted by the owner or operator and on the agency's analysis of the effect of such construction or modification on ambient air quality. Opportunity for public comment shall include, as a minimum:

(*a*) Availability for public inspection, in at least one location in the region affected, of the information submitted by the owner or operator, and the State or local agency's analysis of the effect on air quality.

(*b*) A 30-day period for submittal of public comment, and

(*c*) A notice by prominent advertisement in the region affected of the location of the source information and analysis specified in subparagraph (4) (i) of this paragraph.

(ii) Within 90 days from an owner or operator's submission of the information required under subparagraph (5) of this paragraph, the State shall also publicly announce and transmit in writing to the Administrator its determination under subparagraph (4) (i) of this paragraph, together with:

(*a*) Copies of all information prepared by the State under subparagraph (4) (i) of this paragraph,

(*b*) A copy of the public notices issued in conformity with subdivision (1) of this subparagraph, and

(*c*) A statement that the State has complied with the requirements of this paragraph.

(9) (i) The Administrator will notify the State of his determination and reasons for any disagreement under subparagraph (4) (ii) of this paragraph no later than 25 days following the State's submission of the information required under subparagraph (8) (ii) of this paragraph. (ii) The State will notify the owner or operator in writing of the approval or denial to construct or modify a source within 120 days of the owner or operator's submission of the information required under subparagraph (5) of this paragraph.

(10) The Administrator may cancel an approval to construct if the construction is not begun within two years from the date of issuance, or if the construction work is suspended for one year.

(11) Approval to construct or modify shall not relieve any owner or operator of the responsibility to comply with all local, State, or Federal regulations which are part of the applicable plan.

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(Revised as of April 1, 1973)

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